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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,876	05/30/2001	Kenneth McGreer	373722001600	4883

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MORRISON & FOERSTER LLP  
755 PAGE MILL RD  
PALO ALTO, CA 94304-1018

EXAMINER

KIANNI, KAVEH C

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 08/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/870,876

Applicant(s)

MCGREER, KENNETH

Examiner

Kevin C Kianni

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 16-25, 29 and 33-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☒ Claim(s) 2, 4-15, 26-28 and 30-32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 10 October 2001 is: a) ☐ approved b) ☒ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. Figure s 1-2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Election/Restrictions***

2. Applicant's election with traverse of claims 1-15, 26-28 and 30-32 in paper 7, is acknowledged. The traversal is on the ground(s) that search and the examination of the entire application can be made without serious burden. This is not found persuasive because the process of Group I can be made/used with different product than that of Group II and because the specific claimed details of Groups I inventions are not cited in Group inventions and visa versa, which also hold true for the selection of species since each Group of the inventions requires different search strategy and in different class/subclasses. The requirement is still deemed proper and is therefore made FINAL.

### ***Allowable Subject Matter***

3. Claims 2, 4-15, 26-28 and 30-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2877

Claims 2, 7, 30-32 are allowable because the prior art, in combination with other limitations of the base claim, does not teach an input slab waveguide optically coupled to the input waveguide; the arrayed waveguide grating optically coupled to the input slab waveguide.

Claims 4 and 30-32 are allowable because the prior art, in combination with other limitations of the base claim, does not teach wherein the first width is constant along a length of the first waveguide, and the second width is constant along a length of the second waveguide.

Claims 5, 7 and 27 and 30-32 are allowable because the prior art, in combination with other limitations of the base claim, does not teach wherein the first waveguide and the second waveguide each comprise a tapered first end and a tapered second end and an intermediate segment therebetween.

Claims 6, 27 and 30-32 are allowable because the prior art, in combination with other limitations of the base claim, does not teach wherein the first waveguide comprises an average width which is different from an average width of the second waveguide such that a standard deviation of a width along a length of the first waveguide divided by the average width of the first waveguide is less than about 0.1.

Claims 8 and 10 are allowable because the prior art, in combination with other limitations of the base claim, does not teach wherein each of the waveguides in the arrayed waveguide grating comprise buried channel waveguides.

Claim 9 is allowable because the prior art, in combination with other limitations of the base claim, does not teach wherein each of the waveguides in the arrayed waveguide grating comprise silica.

Claim 11 is allowable because the prior art, in combination with other limitations of the base claim, does not teach wherein each of the widths of the waveguides in the arrayed waveguide grating is configured to provide a predetermined polarization dependent wavelength.

Claims 12-15 and 26 are allowable because the prior art, in combination with other limitations of the base claim, does not teach wherein the waveguides in the arrayed waveguide grating are configured according to Eq. 11.

Claims 28 and 29 are allowable because the prior art, in combination with other limitations of the base claim, does not teach wherein a value of  $I_{WN} - W_{II}$  is between about  $0.5 \mu\text{m}$  and about  $5 \mu\text{m}$ .

### **Claim Rejections - 35 USC § 103**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhagavatula (US 5768450).

Regarding claims 1, 3, Bhagavatula teaches waveguide array structure (shown in at least fig. 8) comprising: at least a first waveguide having a first width and a first length (shown in fig. 8, item central waveguide of device 70 with relatively thick width and short length); and a second waveguide having a second width different from the first width and a second length different from the first length (shown in fig. 8, item bottom waveguide of device 70 with relatively narrow width and long length; see also col.5, line 54-col. 6, line 12; wherein the variation in optical path lengths are due to variation in optical waveguide lengths, see also the variation in lengths of waveguides for focusing beams similar to the structure of fig. 8 discussed in page 1, lines 26-36); wherein the first waveguide comprises an average width which is different from an average width of the second waveguide (shown in fig. 8, wherein the average widths  $a_1$ - $a_n$  increase from the bottom waveguide 76 to the top waveguide 76).

However, Bhagavatula does not specifically teach (A) wherein the above waveguide array structure is arrayed waveguide grating; . Although the examiner does not yield weight for the above preamble since it has been held that a preamble is denied the effect of a limitation where the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951); nonetheless, Bhagavatula further states that grating curvature used for reflecting waveguides output beams provides output light focusing mechanism (col. 1, lines 26-30+). Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made to use Bhagavatula's waveguide structure in a conventional arrayed waveguide grating such

Art Unit: 2877

as the AWG of prior art disclosed by the applicant for figure 1 of the specification in page 3, 3<sup>rd</sup> paragraph, since such structure uses multiplexers/demultiplexers to output optical signals according to their wavelengths (see col. 1, lines 6-9).

***Citation of Relevant Prior Art***

6. Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In accordance with MPEP 707.05 the following references are pertinent in rejection of this application since they provide substantially the same information disclosure as this patent does. These references are:

Welch et al. 4751711 teaches claims 1 and 3

Peeler et al. 4423421

Vreeburg et al. 'A low-loss 16-channel polarization dispersion-compensation PHASAR  
Demultiplexer'

Goudey et al. 4228410

Takagi et al. 5165001

These references are cited herein to show the relevance of the apparatus/methods taught within this reference as prior art.

**Contact Information**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaveh Cyrus Kianni whose telephone number is (703) 308-1216.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (703) 308-4881.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 308-7722, (for formal communications intended for entry)

**or:**

(703) 308-7721, (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.

Kevin Cyrus Kianni  
Patent Examiner  
Group Art Unit 2877

  
Frank Font  
Supervisory Patent Examiner  
Group Art Unit 2877

July 30, 2003



Attachment for PTO-948 (Rev. 03/01, or earlier)  
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

**INFORMATION ON HOW TO EFFECT DRAWING CHANGES**

**1. Correction of Informalities -- 37 CFR 1.85**

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

**2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.**

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

**Timing of Corrections**

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.